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JAPANESE INDUSTRIAL STANDARD

Testing Method for 75° Specular Gloss of Paper and Paperboard

JIS P 8142 --1965

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

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Testing Method for 75° Specular Gloss of
Paper and PaperboardP 8142-1965
(Reaffirmed in 1989)1. Scope

This Japanese Industrial Standard specifies the testing method for 75° (15° to paper surface) specular gloss of paper and paperboard. However, this Standard does not apply to those of specularly strong gloss such as cast-coated paper and of low gloss not more than 15 (%) in measured value.

2. Definition

75° specular gloss means the following. According to the apparatus of which concept is shown in Attached Figure make incident the beam of light at specified opening angle in the angle of incidence of 75° to the sample surface, measure the beam of light of specified opening angle reflecting in regular reflection angle by using a photoelectric cell or other suitable light receiver, and this gloss means the ratio of this value to the glass surface reflecting beam of light of refractive index of 1.567 under the same conditions.

3. Apparatus

The measuring instrument consists of light source, opening of light source, lenses, sample stand, opening of light receiver, light receiver and specular gloss indicating mechanism as shown in Attached Figure. Their geometric conditions and spectral characteristics are shown in the following.

3.1 Geometric Conditions

- (1) For incident rays to the sample surface, use rays made parallel lines, and make the angle (θ) of central line to the normal of sample surface $75 \pm 0.5^\circ$.
- (2) Make the angle of central line of light reflected from the sample surface and entering the light receiver to the normal of sample surface $\theta \pm 0.3^\circ$.
- (3) Make the opening angle⁽¹⁾ α_s of sample surface not more than 1° , β not more than 3° , and the opening angle of light receiver α_r , the circular shape of $11.5 \pm 0.5^\circ$.

Note ⁽¹⁾ Refer to 2.(7) of JIS Z 8741.

3.2 Spectral Characteristics The light source shall be a C light source⁽²⁾ having no polarizing property and the light source and light receiver shall satisfy the value of Y of Luther conditions⁽³⁾. However, in the common case, instead of C light source A light source⁽²⁾ may be used.

Notes ⁽²⁾ Refer to 5. of JIS Z 8701.

⁽³⁾ Refer to 2.(10) of JIS Z 8701.

4. Reference of 75° Specular Gloss

As the reference of 75° specular gloss, the first reference surface or the second reference surface specified in the following shall be used(*).

- (1) First Reference Surface For the first reference surface of 75° specular gloss, use a black glass flat, smooth surface of known refractive index.
- (2) Second Reference Surface For the second reference surface of 75° specular gloss, use white tile surface having various glass.

The second reference surface shall be calibrated to the first reference surface.

Note (*) Refer to 5.4 of JIS Z 8741.

5. Test Piece

The test piece shall be taken according to JIS P 8110, and prior to measurement, necessarily, pretreated according to JIS P 8111.

The size of test piece shall be of such sufficient size as to cover completely the sample hole of instrument.

The measuring surface shall be free from abnormalities influencing the correctness of measuring result such as folding, wrinkles, large dirt, spots and staining spots, etc. Further, it shall be so made as not to contact the finger or stains.

The test shall be carried out in atmosphere coincident with the conditions of JIS P 8111 and cares be taken for the measuring surface to maintain specially clean.

6. Operation

Apply the first reference surface to the sample hole of instrument, and regulate the instrument so as to indicate the value of correct specular gloss inherent to the reference.

Further, exchange it with the second reference surface and make coincident with the indicating value.

Next, apply the measuring surface of test piece flatly to the sample hole and read out the indicating value of specular gloss.

Take the indicating value when the longitudinal direction of paper is made coincident with the direction of axis of incident and reflecting lights as the specular gloss in longitudinal direction and take the indicating value in the direction at right angles with this as the specular gloss in lateral direction.

Relating to at least not less than five sheets of test piece, measure surface specular gloss in longitudinal and lateral directions and, if required, measure the specular gloss of back.

7. Report

Unless specially designated, average the total measured values in longitudinal and lateral directions of surface to report.

The report shall be made with 75° specular gloss {GS (75°)} (%), round off the one place of decimal according to JIS Z 8401, and, if required, describe the number of times of measuring, minimum value and the maximum value.

% may be omitted.

Reference Standards:

JIS Z 8741-Method of Measurement for Specular Glossiness

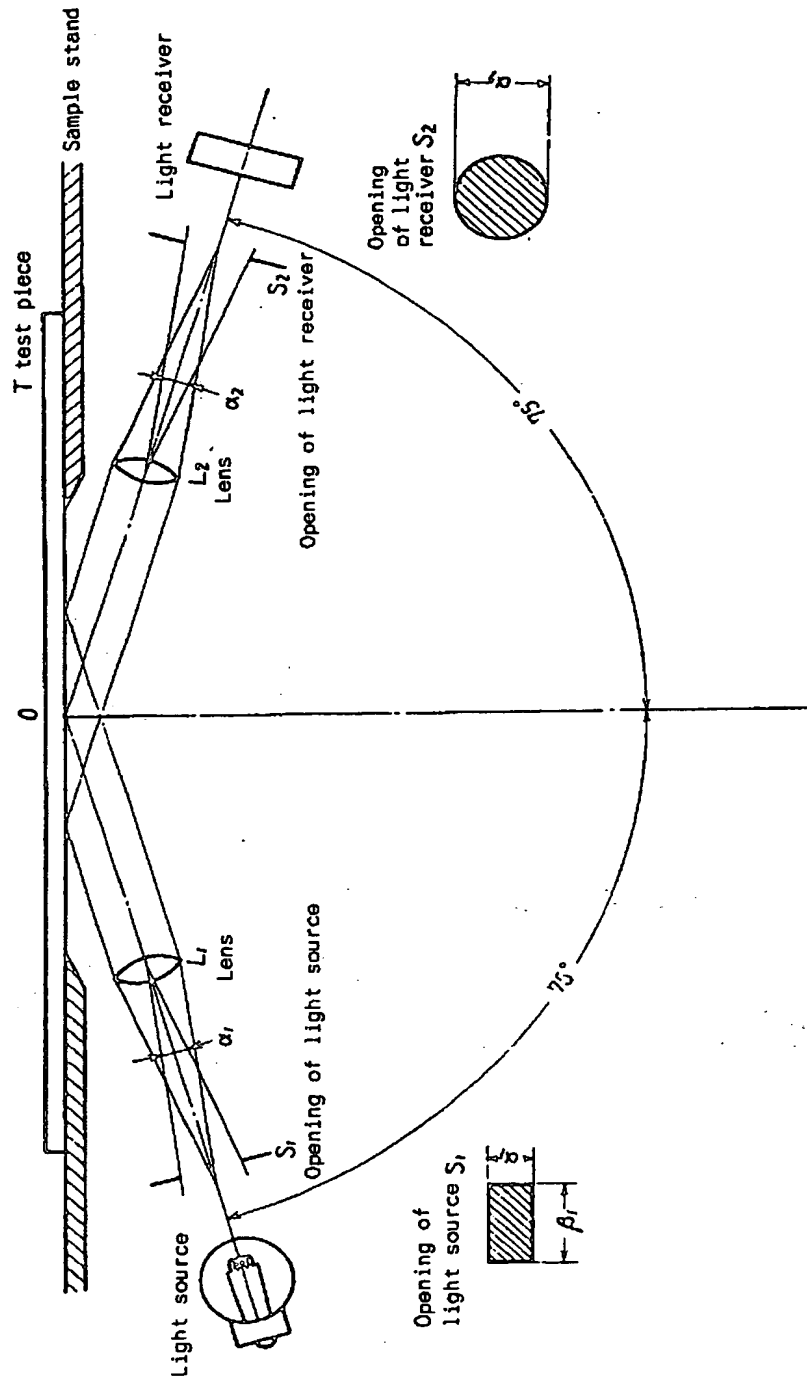
JIS Z 8701-Specification of Colours According to the CIE 1931 Standard Colorimetric System and the CIE 1964 Supplementary Standard Colorimetric System

JIS Z 8401-Rules for Rounding off of Numerical Values

JIS P 8110-Method for Sampling Paper for Testing

JIS P 8111-Conditioning of Paper and Paperboard for Test

Attached Figure. Concept Figure of 75° Specular Gloss Measuring Apparatus



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